

wherein the plurality of first lines are formed such that each first line extends over the plurality of second lines at corresponding crossover locations, and

wherein an air-gap is defined at each crossover location that separates each first line from the plurality of second lines, wherein each air-gap extends from a top surface of a corresponding second line to a bottom surface of said each first line.

*B1 end*  
[Please replace Claim 2 as follows:]

2. (Amended) The integrated circuit according to Claim 1, wherein each pixel circuit includes an access transistor and a pixel element, wherein the access transistor includes a gate terminal connected to an associated first line, a first terminal connected to the pixel element, and a second terminal connected to an associated second line.

---

[Please replace Claim 8 as follows:]

---

8. (Amended) An image sensor array comprising:  
a plurality of pixel circuits arranged in rows and columns, each pixel circuit including an access transistor;

a plurality of gate lines, each gate line connected to the access transistors of a corresponding column of pixel circuits;  
and

*B2 cont'd*  
a plurality of data lines, each data line connected to the access transistors of a corresponding row of pixel circuits,

wherein the plurality of data lines are formed such that each data line overlaps the plurality of gate lines at corresponding crossover locations, and

wherein an air-gap is defined at each crossover location that separates each data line from the plurality of gate lines such that each air-gap extends from a top surface of a corresponding gate line to a bottom surface of said each data

B2  
line.

[Please enter new Claim 21 as follows:]

21. (New) The image sensor array according to Claim 8, wherein the access transistor of each pixel circuit comprises a self-aligned thin-film transistor.

[Please enter new Claim 22 as follows:]

22. (New) The image sensor array according to Claim 21, wherein the self-aligned thin-film transistor of each pixel circuit comprises:

B3  
Cont'd  
an amorphous silicon (a-Si:H) layer including a relatively undoped first region located over an associated gate line, the first region being located between a doped second region and a doped third region; and

an optical filter island located over the first region, the optical filter island comprising at least three layers having at least two indexes of refraction and being arranged such that the optical filter island is reflective of a first radiation wavelength and transmissive of a second radiation wavelength.

[Please enter new Claim 23 as follows:]

23. (New) The image sensor array according to Claim 22, wherein each of the plurality of pixel circuits also comprises a sensor including an amorphous silicon (a-Si:H) layer formed on a metal plate,

wherein the metal plate is connected to the doped second region of the self-aligned thin-film transistor, and

wherein an associated data line is connected to the doped third region of the self-aligned thin-film transistor.

[Please enter new Claim 24 as follows:]

24. (New) The image sensor array according to Claim 8, wherein each of the plurality of pixel circuits also comprises a

charge sensing region that is separated from the associated data line by a buried insulator layer comprising a resin derived from B-staged bisbenzocyclobutene monomers.

[Please enter new Claim 25 as follows:]

25. (New) The image sensor array according to Claim 24, wherein the buried insulator layer has a thickness of 3 to 5 microns.

[Please enter new Claim 26 as follows:]

B3  
Cont'd  
26. (New) The image sensor array according to Claim 24, wherein the charge sensing region of each of the plurality of pixel circuits comprises an amorphous silicon (a-Si:H) layer.

[Please enter new Claim 27 as follows:]

27. (New) The image sensor array according to Claim 8, wherein the image sensor array further comprises spaced-apart data line support pads formed from the first metal layer, and

wherein each spaced-apart data line support pad contacts an associated data line.

[Please enter new Claim 28 as follows:]

28. (New) An image sensor array comprising:  
a substrate having an upper surface defining a plane;  
a plurality of pixel circuits arranged in rows and columns over the upper surface of the substrate;  
a plurality of first lines, each first line being formed on the upper surface of the substrate and connected to a corresponding first group of said pixel circuits; and  
a plurality of second lines connected to a corresponding second group of said pixel circuits, each second line including:  
first portions supported by the upper surface of the

substrate, and

second portions extending over the plurality of first lines at corresponding crossover locations such that an air gap is defined at each said crossover location between a top surface of a corresponding first line and a bottom surface of the corresponding second portion of said each second line.

[Please enter new Claim 29 as follows:]

B3  
Cont'd

29. (New) The image sensor array according to Claim 28, further comprising a plurality of support pads, each support pad being formed on the upper surface of the substrate and contacting a corresponding first portion of an associated second line.

[Please enter new Claim 30 as follows:]

30. (New) An image sensor array comprising:  
a substrate having an upper surface defining a plane;  
a plurality of pixel circuits arranged in rows and columns over the upper surface of the substrate;  
a plurality of first lines, each first line being formed over the upper surface of the substrate and connected to a corresponding first group of said pixel circuits;  
a plurality of support pads, each support pad being formed over the upper surface of the substrate; and  
a plurality of second lines connected to a corresponding second group of said pixel circuits, each second line including:  
a plurality of first portions, each first portion contacting a corresponding support pad, and  
second portions extending between adjacent first portions such that each second portion is freely supported by an associated pair of adjacent first portions, wherein each second portion extends over a corresponding first line such that an air

A0682 (XC-004)  
S/N: 09/898,321

*B3  
end* gap is defined between the corresponding first line and said  
each second portion.

---